

Ser. No. 09/974,777
Response to Office Action of 12 February 2003
Atty Docket 117163-28

REMARKS

Information Disclosure Statement

The Examiner errs in not considering the references provided in the Information Disclosure Statement filed on October 9, 2001. Each of the German language references (BE through BJ) has an English language equivalent provided, and the corresponding cases are listed in the IDS. Proper consideration is requested.

Claims

Claims 1-66 were pending in this matter on the date of the Office Action. Of these, claims 1, 5-7, 31-38, and 66 have been amended. The limitation previously presented in claims 3 and 4 has been incorporated into claim 1 and claims 3 and 4 have been cancelled.

Claim objections

There are two objections to claims 1 and 66. Both are corrected in the amendments. The applicants have adopted the Examiner's suggestion that the phrase "adjoin a turning point" be changed to "adjoin at a turning point." As to Examiner's second suggested change, the applicant respectfully disagrees. The "first condition" of the stent is a "compressed first condition," as recited in paragraph [0002], so this phrase is adopted throughout the claims to distinguish it from the term "first direction."

35 USC §112 Rejections

The Examiner has rejected claims 1-66 as being indefinite, under 35 USC 112, second paragraph, for failing to particularly point and out and distinctly claim the subject matter.

First, the Examiner states that claim 1 recites the phrase "in particular" in line 1. This phrase has been removed.

The Examiner also states that claims 1 and 66 contain the phrase "extend curvedly in a first direction in the longitudinal direction" which is indefinite because it is unclear whether the first direction is the same or different from the longitudinal direction. Actually, this phrase is best understood with reference to both Fig. 1 and paragraph [0040], from which is clear that the phrase should be changed to "extend curvedly in ~~a first direction~~ an identical arcuate manner in the longitudinal direction."

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Claims 5-7, which hang the same limitation from different claims, have been amended to clarify that the goal of keeping stresses in the bar element portions during flexural deformations below the plastic deformation limit may be achieved by at least one of two means: the curvature in the bar elements and varying the width of the bar elements along their length. While the amendment appears to be extensive, actually it is only a rewording of language already in the claims. Paragraph [0027] supports this amendment.

The Examiner has rejected claims 31 through 38, which hang the same limitation from different claims, for lacking antecedent basis for the term "period" as used to describe the spacing between the points where connecting bars connect adjoining bar elements. This rejection is addressed by reference to paragraph [0023] and Figure 1, which show that the bar elements meander in a periodic manner in the peripheral direction of the stent. The paragraph and figure also show that, in the compressed first condition of the stent, the connecting bars, which are rectilinear, extend between two mutually facing turning points of two adjoining bar elements that are displaced relative to each other by between one and two periods of the bar element meander.

35 USC §102 Rejections

von Oepen (US 6,193,747)

Claims 1-7, 11-30, 47, 48, and 66 stand rejected as being anticipated by U.S. Patent 6,193,747 to von Oepen ("von Oepen '747"), and particularly Figure 5 therein. The applicant traverses the rejection.

Claim 1

Claim 1 is an independent claim and, if it is not anticipated by von Oepen '747, then claims 2 and 5-65 are also allowable as properly dependent claims.

The preamble of claim 1, as now amended, requires "a stent for expansion from a compressed first condition into an expanded second condition in which it holds a vessel in an expanded state in an implantation location." The applicants agree that the preamble reads upon von Oepen '747.

The first limitation of claim 1 is "a tubular body with a peripheral surface formed from a number of annular support portions that comprise bar elements connected in a longitudinal direction of the stent at an engagement point by way of connecting bars." Applicants agree that Figure 5 of von Oepen '747 shows these elements.

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The next limitation is that the “bar elements of at least a first annular support portion extend in a meander configuration in a peripheral direction of the stent.” Figure 5 of von Oepen ‘747 meets this limitation.

The third limitation is that “a number of bar element portions which adjoin at a turning point are arranged in a V-shape in the compressed first condition of the stent.” Figure 5 of von Oepen ‘747, as understood, has the bar element portions shown in the compressed first condition of the stent. However, the applicants disagree with the Examiner that any of these bar element portions are “arranged in a V-shape.” The V-shape that the Examiner has shown in the diagram provided is a “connecting bar.” In the first limitation discussed above, the connecting bars are distinguished from the “bar elements.” To allow the Examiner’s position, then the “bar element portions” that have the V-shape would have to make up the connecting bars and not the bar elements. But, if that is the case, why would they be called “bar element portions”? At Col. 4, lines 11-13, von Oepen refers to these web patterns 5” and 6” as being “more wound or undercut than the web patterns 5, 6 of Fig. 2 to form S-shaped segments.

The fourth limitation of claim 1, as amended, is that the invention is “characterised in that the bar element portions of the first annular support portion are adapted to extend curvedly in an identical arcuate manner in the longitudinal direction of the stent.” This limitation is also not met by von Oepen ‘747, as it cannot be by anything that has an S-shape. At the turning points, the bar element portions turn from being curved arcuately upwardly to being curved arcuately downwardly, which is a reversal in direction.

Finally, claim 1 as amended, requires that “the bar element portions are curved uniformly over a length thereof.” Since von Oepen ‘747 explicitly admits the S-shape, it almost axiomatic that this limitation cannot be met, since an S-shape is the paragon of non-uniform curvature.

For these reasons, claim 1 does not read onto von Oepen ‘747, so it is not anticipated thereby. Dependent claims 2 and 5-65 are also allowable.

Claim 66

Claim 66 is an independent claim, but it differs from claim 1 only in that it claims a catheter comprising a stent as described in claim 1. Applicants do not admit that von Oepen ‘747 meets the limitation of teaching a catheter, since it seems to be strictly limited to teaching a stent, but, even if it did, the stent is not anticipated by von Oepen ‘747, for exactly the reasons that claim 1 is not anticipated by von Oepen ‘747.

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Globerman (US 5,776,161)

Claims 1-7, 11-30, 47, 48, and 66 stand rejected as being anticipated by U.S. Patent 5,776,161 to Globerman ("Globerman '161"). The applicant traverses the rejection for at least the following reasons.

Claim 1

Claim 1 is an independent claim and, if it is not anticipated by Globerman '161, then claims 2 and 5-65 are also allowable as properly dependent claims.

The preamble of claim 1, as now amended, requires "a stent for expansion from a compressed first condition into an expanded second condition in which it holds a vessel in an expanded state in an implantation location." The applicants agree that the preamble reads upon Globerman '161.

The first limitation of claim 1 is "a tubular body with a peripheral surface formed from a number of annular support portions that comprise bar elements connected in a longitudinal direction of the stent at an engagement point by way of connecting bars." Applicants agree that Figure 16 of Globerman '161, as cited by the Examiner, shows these elements.

The next limitation is that the "bar elements of at least a first annular support portion extend in a meander configuration in a peripheral direction of the stent." Figure 16 of Globerman '161 meets this limitation.

The third limitation is that "a number of bar element portions which adjoin at a turning point are arranged in a V-shape in the compressed first condition of the stent." Figure 16 of Globerman '161, as understood, shows the bar element portions as being smoothly curved and having no points that can be characterized as "V-shape." Applicants assert that Globerman '161 lacks this feature.

The fourth limitation of claim 1, as amended, is that the invention is "characterised in that the bar element portions of the first annular support portion are adapted to extend curvedly in an identical arcuate manner in the longitudinal direction of the stent." This limitation is also not met by Globerman '161. At the turning points, the bar element portions turn from being curved arcuately upwardly to being curved arcuately downwardly, which is a reversal in direction.

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Finally, claim 1 as amended, requires that "the bar element portions are curved uniformly over a length thereof." To the extent that Globerman '161 teaches an S-shape, it almost axiomatic that this limitation cannot be met, since an S-shape is the paragon of non-uniform curvature.

For these reasons, claim 1 does not read onto Globerman '161, so it is not anticipated thereby. Dependent claims 2 and 5-65 are also allowable.

Claim 66

Claim 66 is an independent claim, but it differs from claim 1 only in that it claims a catheter comprising a stent as described in claim 1. Applicants do not admit that Globerman '161 meets the limitation of teaching a catheter, since it seems to be strictly limited to teaching a stent, but, even if it did, the stent is not anticipated by Globerman '161, for exactly the reasons that claim 1 is not anticipated by Globerman '161.

35 USC §103 Rejections

The Examiner has rejected claims 31-46 and 49-65 as being unpatentable over von Oepen '747 in view of US Patent 6,261,319 to Kveen et al. ("Kveen '319"). The applicant traverses this rejection for at least the following reasons.

Primary to this argument is that, as argued above regarding claim 1, claim 1 does not read onto von Oepen '747, which lacks several elements required by claim 1, including the V-shape bar element portions and the uniform curvature in the same direction.

Admittedly, Kveen '319 teaches a stent device where the connecting bars extend between two mutually-facing turning points of two adjoining annular support portions, the turning points being displaced by between one and two periods of the meandering pattern. However, this teaching does not make a proper 103 rejection unless all elements of the claim are met. It remains that von Oepen '747 does not anticipate claim 1, and Kveen '319 does not supply those missing elements.

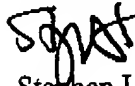
Accordingly, the applicant respectfully requests reconsideration of the rejections based on the claim amendments made above. After such reconsideration, it is urged that allowance of all claims will be in order.

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Respectfully submitted,



Stephen L. Grant

Reg. No. 33,390

Hahn Loeser & Parks Co. LLP

1225 W. Market St.

Akron, OH 44313

slgrant@hahnlaw.com

Customer No. 021324

Phone 330-864-5550

Fax 330-864-7986